SERVICE MANUAL

SANYO

RADIO CASSETTE RECORDER

M1790F

EUROPE

142 431 37

SPECIFICATIONS

Power Source	
DC	3V
	(UM-3, HP 7, AA Cell, Mignonzellen, R6 x 2)
Output Power	400mW (Max.)
Current Consumption (at Vol. min.)	
Record mode	160mA
Playback mode	160mA
Fast Forward mode	200mA
Rewind mode	200mA
Recording System	DC Bias
Erasing System	Magnet Erasing
Tape Speed	1-7/8ips. ±3%
Fast:	+30%
Slow:	−10%
Fast Forward Time	120 sec. (with C-60)
Rewind Time	120 sec. (with C-60)
Wow & Flutter	0.5%/WRMS
Frequency Response (Overall)	250 ~ 6,300Hz
Torque	
Playback	30 ~ 50g-cm
Fast Forward/Rewind	60 ~ 120g-cm
Erase Ratio (Overall)	more than 40dB
Signal to Noise Ratio	more than 30dB
Harmonic Distortion (K3)	less than 10%
Hum & Noise (At Vol. min.)	less than −50dBs
Crosstalk	
Track to Track	more than 60dB
Terminal Impedance	
MIC	0.3mV/600Ω
Earphone	8Ω
Frequency Range	
AM	530 ~ 1,605kHz
FM	88.5 ~ 108MHz
Dimensions (W x H x D)	87 x 125 x 38.2mm
Weight (without batteries)	340g

–Specifications subject to change without notice.–

WM-17421

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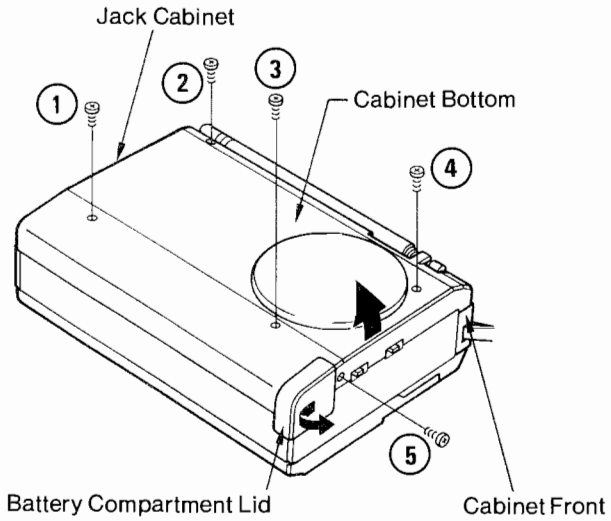
DISASSEMBLY INSTRUCTIONS

GENERAL REMARKS

- Before disassembling the unit, spread a soft rubber mat or a cloth on the workbench to avoid scratches and grease stains.
- Do not spread anything which is likely to cause static electricity because transistors and ICs may be easily damaged by it.
- Reassemble the unit, noting the kinds of screws and the soldering and arrangement of the leads. Refer to "Circuit Diagram and Exploded Views" for correct assembly.
- Before disassembling the unit, take out the cassette tape and the batteries from the unit.

CABINET BOTTOM REMOVAL

1. Remove the five screws (1 ~ 5) fastening the Cabinet Bottom and open the Battery Compartment Lid.

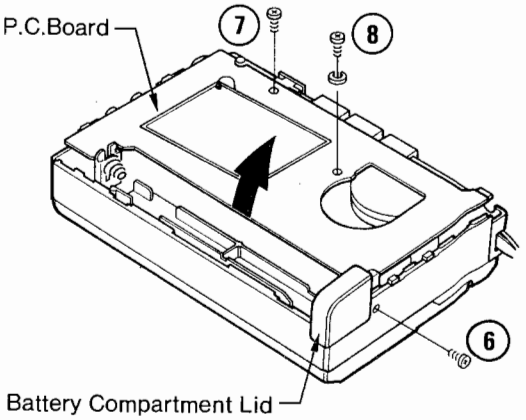


2. To detach the Cabinet Bottom, lift it in the direction of the arrow.
3. Unsolder the antenna lead (blue) and the speaker leads (black and brown) from the P.C.Board.

   NOTE:
   By removing the Cabinet Bottom, the Cabinet Front and Jack Cabinet can be detached. When resoldering the removed lead wires, refer to the Wiring Diagram to avoid miswiring.
4. Reassemble in reverse order.

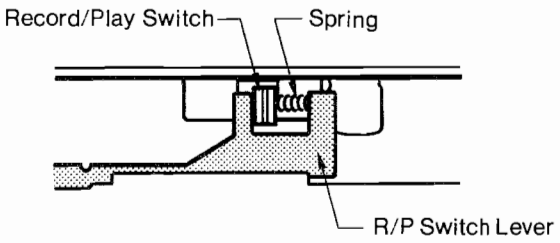
P.C.BOARD REMOVAL

1. Remove the Cabinet Bottom by following the instructions and unsolder the follows leads from the P.C.Board.
   - Battery terminal leads: black and red
   - Rechargeable battery terminal lead: blue
   - Motor leads: red and blue
   - Motor grounding lead: black
2. Detach the Battery Compartment Lid by removing the fastening the screw (6) and remove the two screws (7 and 8) fastening the P.C.Board .



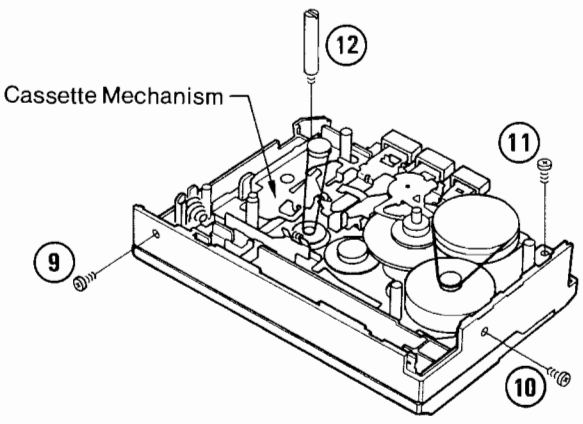
3. Detach the P.C.Board by lifting it in the direction of the arrow with caution not to damage the built-in microphone and LED indicator leads.
4. Reassemble in reverse order.

   NOTE:
   - When the removed lead wires are resoldered, refer to the Wiring Diagram to avoid miswiring.
   - When the P.C.Board is reassembled, the Record/Play Switch should be attached to the R/P Switch Lever correctly as illustrated.



CASSETTE MECHANISM REMOVAL

1. Detach the P.C.Board by following the instructions and remove the three screws (9 ~ 11) and the post (12) fastening the Cassette Mechanism.



2. Detach the Mechanism from the Cabinet by lifting it.
3. Reassemble in reverse order.

ADJUSTMENT PROCEDURES

GENERAL REMARKS

- Before the adjustments, wipe off stains on the tape contacting surfaces of the parts and the belt with a soft cloth soaked in alcohol. Trouble may occur because of oil and grease stains. Carefully handle the belt because grease easily attaches to it.

REQUIRED EQUIPMENT

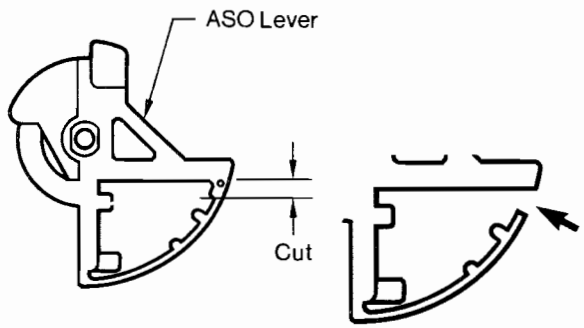
- VTVM
- Frequency Counter
- DC Constant-voltage Regulator
- Dummy Load (16Ω)
- Test Tape
  - ‡ 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - ‡ 8kHz Test Tape (Example: TEAC MTT-113C) for Head Azimuth Adjustment
- Alignment Tool

NOTE:
Before performing the adjustment, set the control and switch as follows:

- ‡ Function Switch ..... TAPE
- ‡ Speed Control Switch ..... NORMAL position
- ‡ Volume Control ..... As desired
- ‡ Supply a regulated DC 3.0V power to the Ext. Power Jack.

ASO LEVER

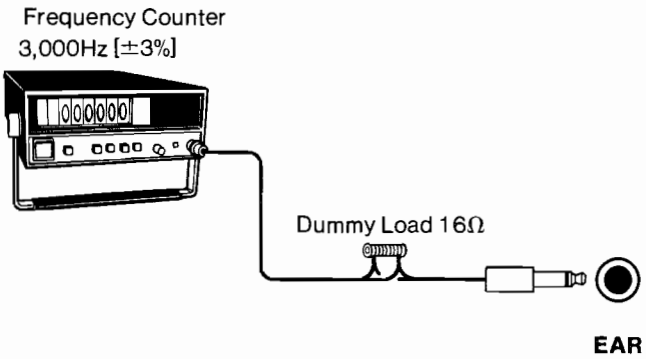
The service part of the ASO Lever is not cut to avoid deforming as illustrated.
When replacing the ASO Lever, cut the part indicated in the illustration.

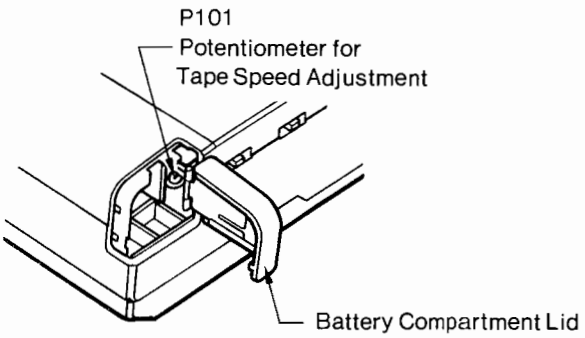


TAPE SPEED ADJUSTMENT

1. Open the Battery Compartment Lid and connect the frequency counter to the earphone jack as illustrated. Confirm that the Speed Control Switch is set to the NORMAL position.
   Then insert the 3kHz test tape into the cassette compartment.

2. While playing back the test tape, adjust the tape speed by turning the potentiometer P101 on the P.C.Board as illustrated until the frequency counter reads 3,000Hz [±3%].



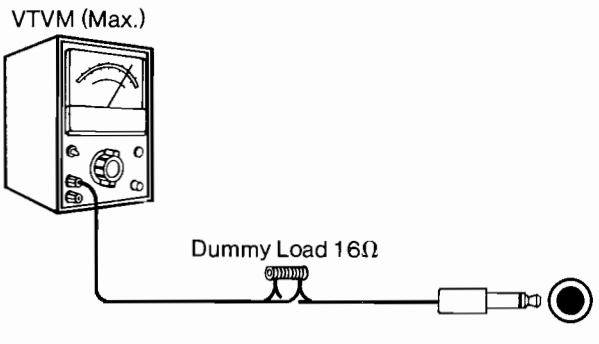


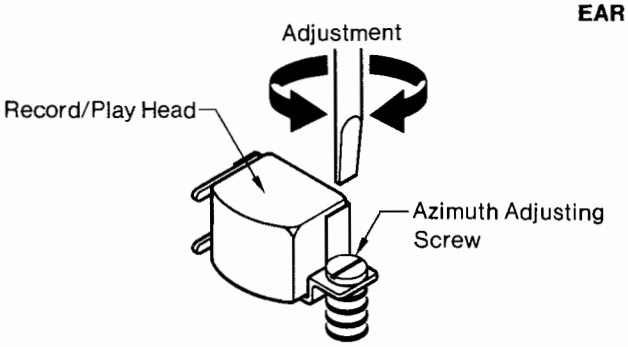
HEAD AZIMUTH ADJUSTMENT

1. Connect the VTVM to the earphone jack as illustrated and insert the 8kHz test tape into the cassette compartment.

2. While playing back the test tape, turn the azimuth adjusting screw until the VTVM reads the maximum.

3. After the adjustment, secure the adjusting screw with paint or glue.





DIAL CORD STRINGING

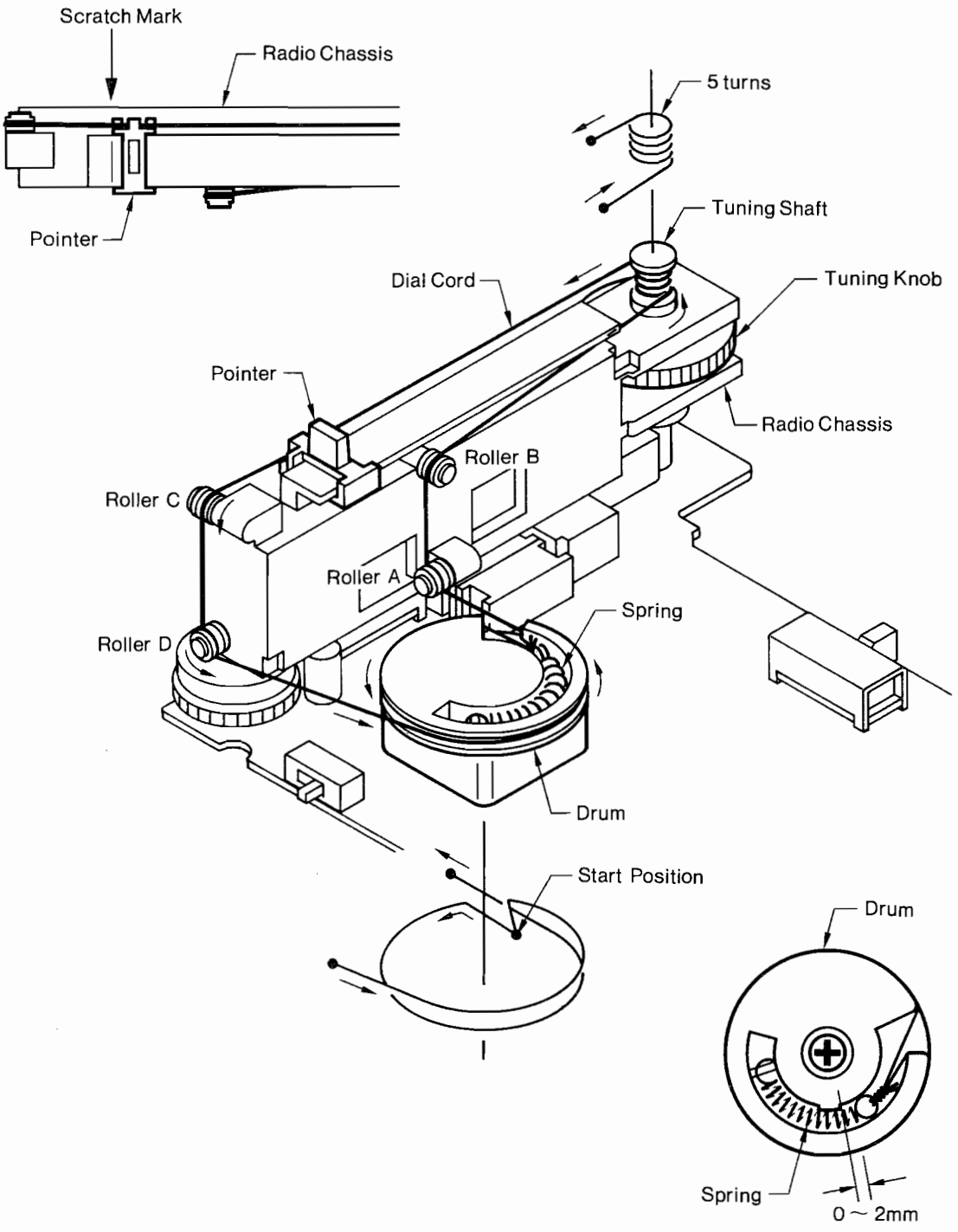
1. Tie the dial cord of 470mm length (effective length: 365mm) and 0.3mm diameter to the spring and hook the spring to the illustrated position of the drum.

2. Engage the dial cord as illustrated in the following order.
   Drum → Roller A → Roller B → Tuning Shaft (5 turns) → Roller C → Roller D → Drum → Spring

3. Hook the dial cord to the spring and tie the cord to the spring where the spring is expanded 0 ~ 2mm from the illustrated position of the drum.

4. Turn the Tuning Knob counter-clockwise until it stops and attach the Pointer to the dial cord. Then match the pointer to the scratch mark on the Radio Chassis as illustrated.

5. Secure the dial cord knot and pointer with paint or glue.



TUNER ADJUSTMENT

EQUIPMENT REQUIRED

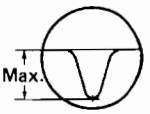
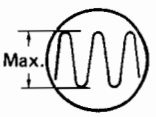
- AM Standard Signal Generator
- FM Standard Signal Generator
- Generator Scope
- Loop Antenna
- Ceramic Capacitor (1000pF) for FM IF Alignment
- Dummy Antenna (75Ω, unbalanced type) for FM
- VTVM
- Oscilloscope
- Dummy Load (16Ω)
- Alignment Tool
- Before performing the adjustment, set the switches and control as follows:
  - ‡ Function Switch ..... RADIO
  - ‡ Band Select Switch ..... AM or FM
  - ‡ Volume Control ..... As desired

NOTE:

- Use an alignment tool with plastic grip for all adjustments.
- Supply a regulated DC 3V power to the Ext Power Jack.

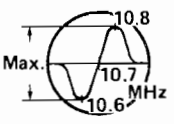
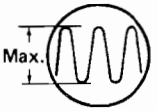
AM ALIGNMENT

Standard Test Frequency 400Hz and Modulation 30% at AM

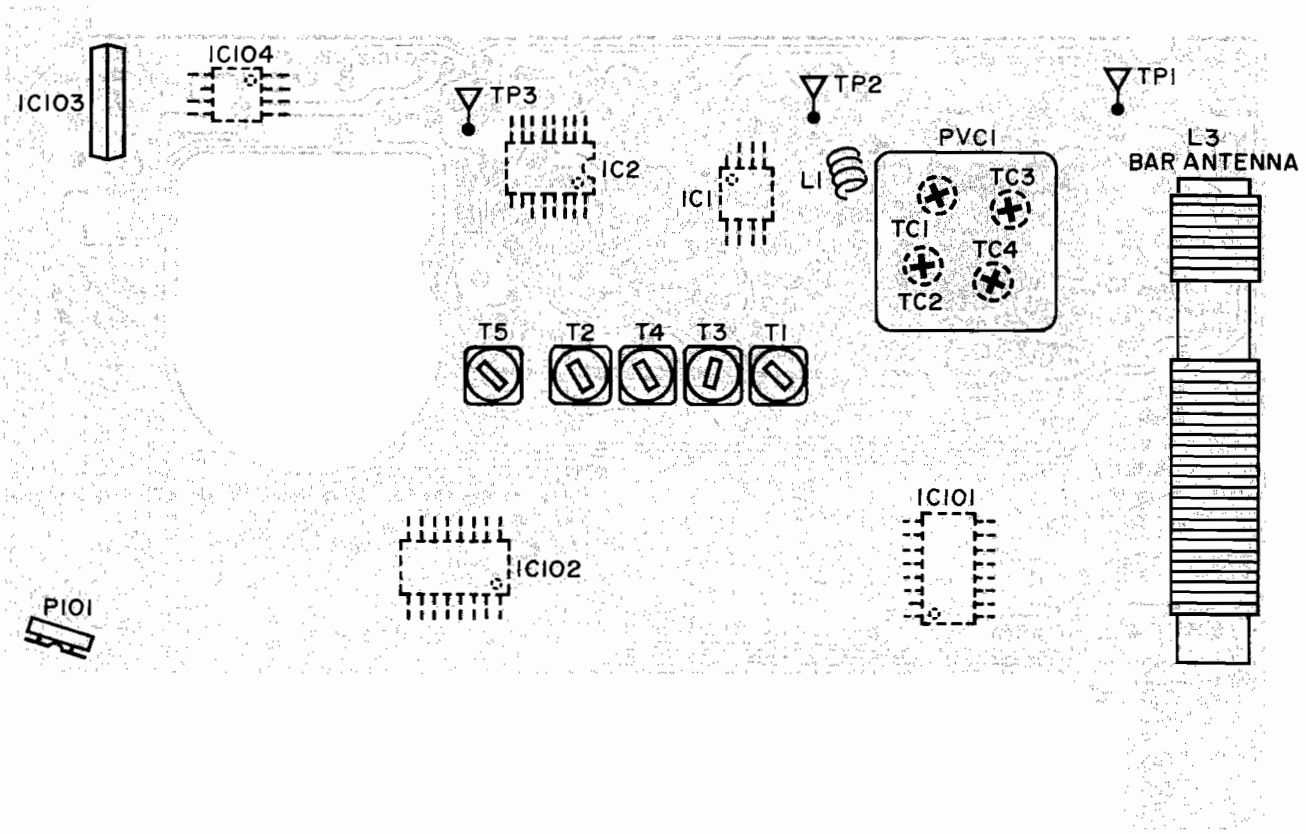
Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of IF for AM	Connect loop antenna to output terminal of gene-scope. Place loop antenna 60cm away from bar antenna.	Connect input terminal of gene-scope to Pin 9 of IC2 (TP3).	460kHz	Low End	T4 and T5	Obtain symmetrical curve and maximum amplitude. 
2	Calibration of Tuning Range	Connect loop antenna to output terminal of AM signal generator. Place loop antenna 60cm away from bar antenna.	Connect VTVM with 16Ω dummy load and oscilloscope to earphone jack.	510kHz		T3	Obtain sine-wave of 400Hz and maximum amplitude. 
3				1,670kHz	High End	PTC4 (PVC)	
4	Adjustment of Tracking			600kHz	600kHz	L3 (bar ant. coil)	
5				1,400kHz	1,400kHz	PTC3 (PVC)	
6	Repeat the above steps until no further change is noted in any of the adjustments.						

FM ALIGNMENT

Standard test frequency 400Hz and deviation 22.5kHz

Step	Alignment	Connections		Frequency of Signal Generator	Tuning Dial Setting	Adjustments	Remarks
		INPUT	OUTPUT				
1	Calibration of IF	Connect output Terminal of gene-scope to Pin 1 of IC1 (TP2) through ceramic capacitor (1000pF).	Connect input terminal of gene-scope to Pin 9 of IC2 (TP3).	10.7	Low End	T1	Obtain **S** curve and maximum amplitude. 
2	Calibration of Tuning Range	Connect FM signal generator to antenna terminals (TP1) through dummy antenna (75Ω, unbalanced type).	Connect VTVM with 16Ω dummy load and oscilloscope to earphone jack.	87.4MHz		L2	Obtain sine-curve and maximum amplitude. 
3				108.25MHz	High End	PTC2 (PVC)	
4	Adjustment of Tracking			90MHz	90MHz	L1	
5				106MHz	106MHz	PTC1 (PVC)	
6	Repeat the above steps until no further change is noted in any of the adjustments.						

PARTS LOCATION FOR ADJUSTMENT



PARTS LIST

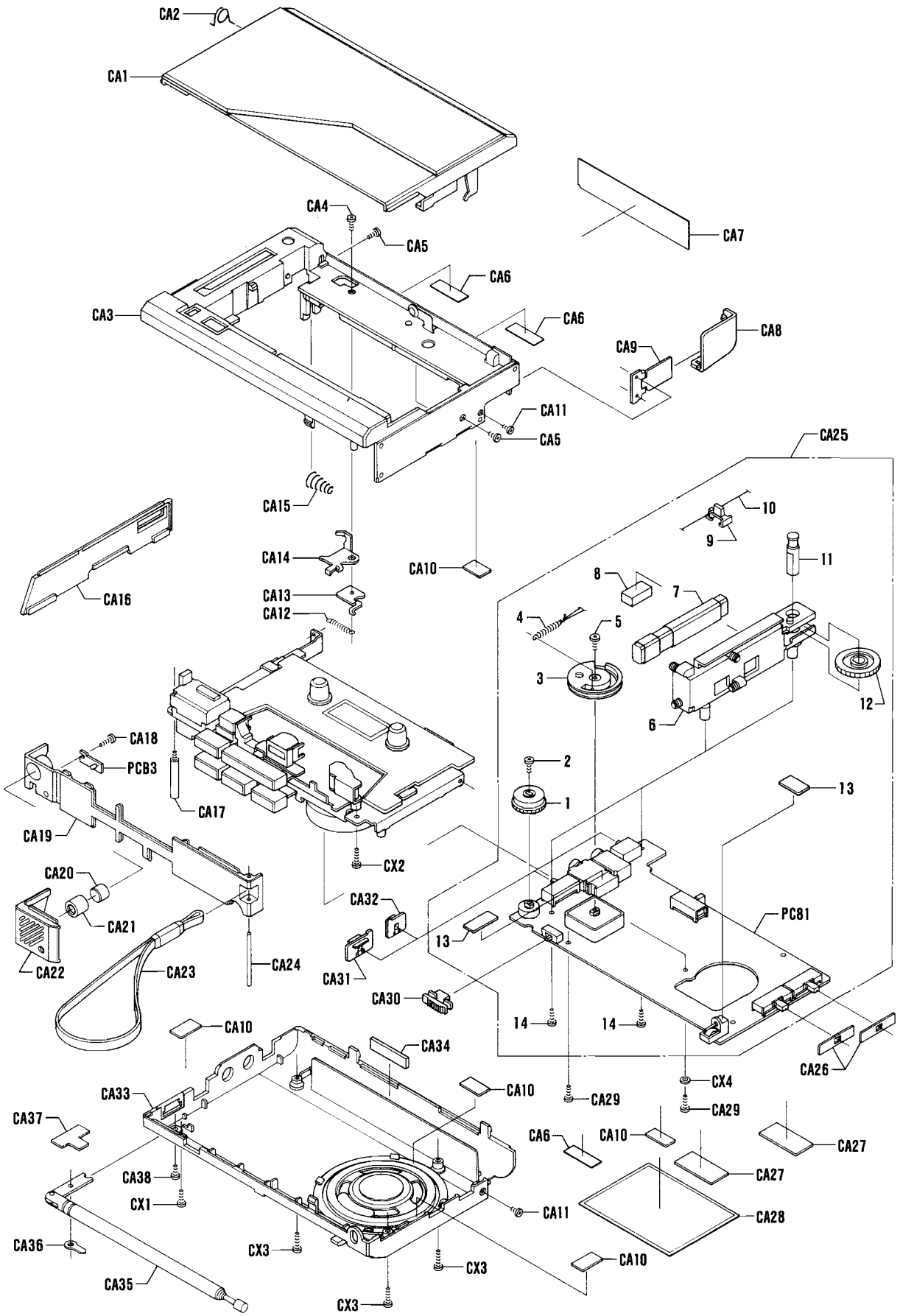
Ref. No.	Part No.	Description	Q'ty
	PACKAGE		
	141-6-1419-90000	Individual Carton	1
	141-6-1469-06800	Case Styrofoam	1
	141-6-2519-12090	Poly Cover	1
	141-6-3919-50300	Plain Pad	1
	141-6-4559-03305	Serial No. Sheet	3
	ACCESSORIES		
	4-2419-70982	Cassette	1
	142-6-4119-33023	Instruction Manual	1
	CABINET		
CA1	141-0-1249-34008	Lid Cassette Assy	1
CA2	141-2-8549-16100	Spring Lid Cassette	1
CA3	141-0-1129-10406	Cabinet Top Assy	1
CA4	141-2-4219-28400	Screw, Pan Hd. +M1.4x2.5	1
CA5	141-2-4219-15400	Screw, +M1.7x2.0	2
CA6	141-2-2899-35500	Adhesive Sheet	4
CA7	141-2-1419-20608	Rating Plate	1
CA8	141-2-1339-35903	Lid Battery	1
CA9	141-2-2519-05400	Hinge	1
CA10	141-2-4469-34602	Cushion	5
CA11	141-2-4219-40001	Screw, Pan Hd.-3 +M1.4x1.6	2
CA12	141-2-8549-33200	Spring	1
CA13	141-2-3519-74600	Holder Interlock	1
CA14	141-2-8419-15400	Interlock Lever	1
CA15	141-2-3829-31500	SPG Terminal Battery	1
CA16	141-2-1149-43101	Cabinet Jack	1
CA17	141-2-7539-65400	Post Cabinet	1
CA18	141-2-4219-21800	Screw, +M1.7x3.0	1
CA19	141-2-1149-43001	Cabinet Front	1
CA20	4-1539-70620	Microphone [BM1]	1
CA21	141-2-3899-11501	Holder Microphone	1
CA22	141-2-1519-45800	Cap Mike	1
CA23	141-2-1769-04600	Hand Strap	1
CA24	141-2-2719-18100	Shaft Handle	1
CA25	141-0-1939-09227	Amplifier Assy	1
CA26	141-2-2419-33400	Sheet Veil	2
CA27	141-2-4419-14901	Sheet	2
CA28	141-2-3229-52800	Plate Shield	1
CA29	141-2-4219-10600	Screw, +M1.7x4.0	2
CA30	141-2-1649-34601	Knob Pause	1
CA31	141-2-1649-34800	Knob Band	1
CA32	141-2-1649-34500	Knob Tape Radio	1
CA33	141-0-1129-10504	Cabinet Bottom Assy	1
CA34	141-2-4469-52700	Cushion	1
CA35	4-2449-70620	Rod Antenna	1
CA36	141-2-4729-07000	Lug	1
CA37	141-2-4359-38700	Insulator	1
CA38	141-2-4219-10801	Screw, +M2.0x2.5	1
CX1	128-3-1317-04018	PI Screw-3, Pan Hd., +M1.7x4.0	1
CX2	128-3-1317-05013	PI Screw-3, Pan Hd., +M1.7x5.0	1
CX3	128-3-1317-06018	PI Screw-3, Pan Hd., +M1.7x6.0	3
CX4	110-3-2101-70013	Spring Washer-2, M1.7	1
PCB3	141-0-1939-09500	LED P.C.B. Assy	1

Ref. No.	Part No.	Description	Q'ty
	AMPLIFIER ASSY		
CA25	141-0-1939-09227	Amplifier Assy	1
- 1	141-2-1639-44009	Knob Volume	1
- 2	141-2-4219-08901	Screw, +M1.7x3.0	1
- 3	141-2-5389-05400	Drum	1
- 4	141-2-8549-14200	Spring	1
- 5	141-2-4219-08900	Screw, +M1.7x3.0	1
- 6	141-0-3119-25500	Chassis Radio Assy	1
- 7	4-2579-72050	Bar Antenna [L3]	1
- 8	141-2-4469-40802	Cushion	1
- 9	141-2-5119-12500	Pointer	1
-10	629-3-0904-70000	String 0.3	1
-11	141-2-7519-72700	Shaft Tuning	1
-12	141-2-1639-61200	Knob Tuning	1
-13	141-2-4469-34602	Cushion	2
-14	141-2-4219-27200	Screw, Pan Hd. Tapping, +M1.7x5.0	2
PCB1	141-0-1939-09226	Amplifier P.C.B. Assy	1

NOTE:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

CABINET EXPLODED VIEW



MECHANISM PARTS LIST

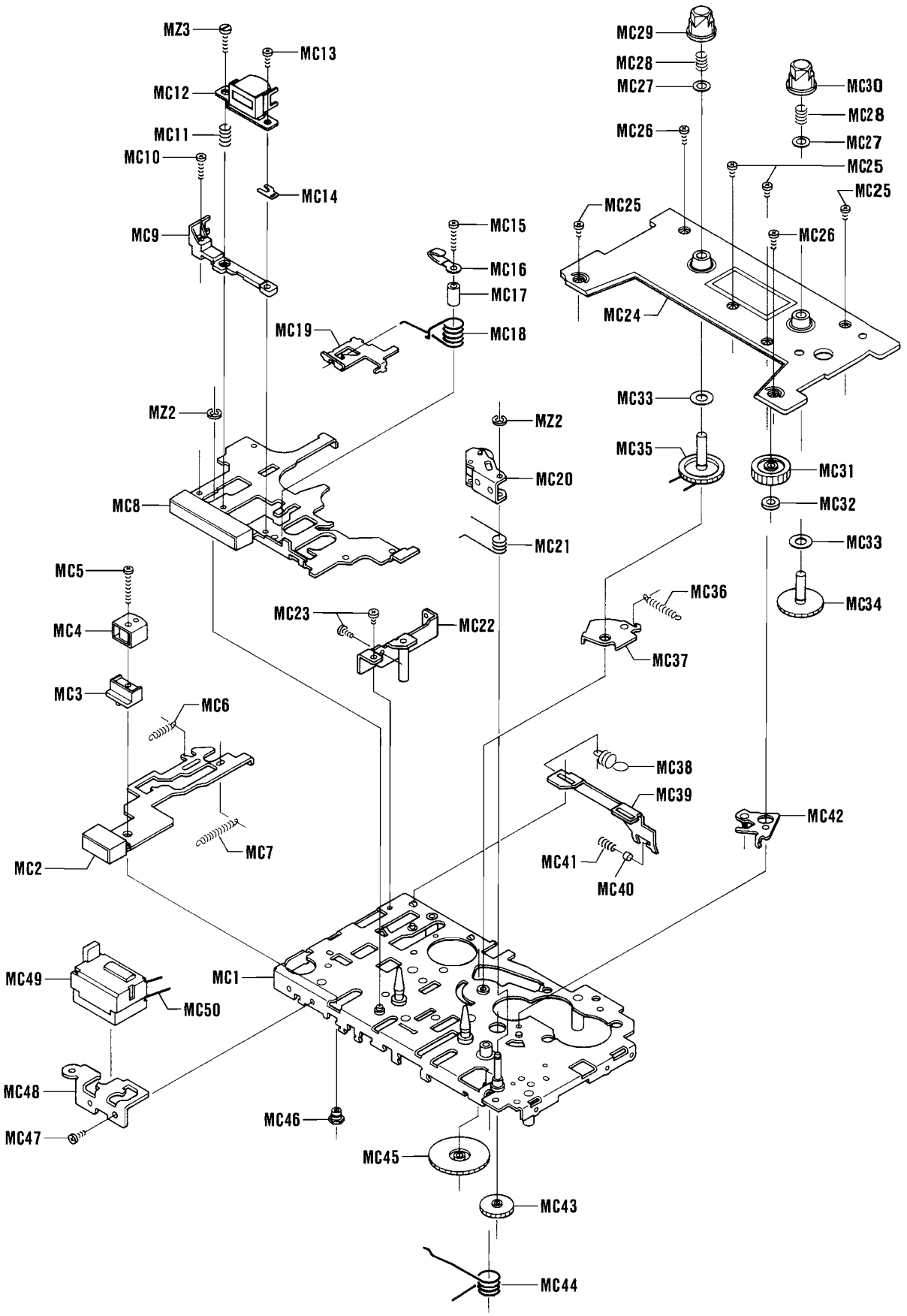
Ref. No.	Part No.	Description	Q'ty
	CASSETTE MECHANISM		
MC1	141-0-3119-25201	Chassis Assy	1
MC2	141-0-7319-31601	Rod Record Assy	1
MC3	141-2-3529-45900	Spacer E Head	1
MC4	4-2429-71241	Erase Head [HD2]	1
MC5	141-2-4219-06602	Screw, +M2.0x11.0	1
MC6	141-2-8549-29200	Spring Rod Record	1
MC7	141-2-8549-29400	Spring Lever Lock R	1
MC8	141-0-7319-31201	Base Slide Assy	1
MC9	141-2-3529-45800	Speacer Head	1
MC10	141-2-4219-04000	Screw, +M2.0x6.0	1
MC11	141-2-8549-32300	Spring Head	1
MC12	4-2429-72780	R/P Head [HD1]	1
MC13	141-2-4219-02900	Screw, Pan Hd. +M2.0x4.0	1
MC14	141-2-3529-18100	Spacer Head	1
MC15	141-2-4219-03600	Screw, +M2.0x8.0	1
MC16	141-2-4729-01902	Lug	1
MC17	141-2-7539-66000	Post SPG Base	1
MC18	141-2-8529-24600	Spring Base Slide	1
MC19	141-2-7319-64700	Plate Slide Base	1
MC20	141-0-5459-02302	Arm Pinchrol Assy	1
MC21	141-2-8529-24700	Spring Arm Pinchrol	1
MC22	141-0-2149-02800	Bracket Assy	1
MC23	141-2-4219-15402	Screw, +M1.7x2.0	2
MC24	141-2-3119-23200	Cover Chassis (Silver)	1
MC24	141-2-3119-23201	Cover Chassis (Black)	1
MC24	141-2-3119-23202	Cover Chassis (Red)	1
MC25	141-2-4219-10803	Screw, +M2.0x2.5	4
MC26	141-2-4219-02904	Screw, Pan Hd. +M2.0x4.0	2
MC27	141-2-4539-37800	Washer, M3.1x5.0x0.13	2
MC28	141-2-8559-11600	Spring Back Tension	2
MC29	141-2-5319-16500	Fin Reel Supply	1
MC30	141-2-5319-16300	Fin Reel Take-up	1
MC31	141-2-5519-61100	Gear Fastwind	1
MC32	141-2-5369-08200	Mold Ring	1
MC33	141-2-4539-30700	Washer, M3.3x6.5x0.13	2
MC34	141-2-5319-16200	Gear Reel Take-up	1
MC35	141-2-5319-16400	Gear Reel Supply	1
MC36	141-2-8549-31200	Spring Arm Fastwind	1
MC37	141-0-7439-18100	Arm Fastwind Assy	1
MC38	141-2-8549-28600	Spring Rod RP Switch	1
MC39	141-2-7319-67200	Rod RP Switch	1
MC40	141-2-4619-08600	Tube	1
MC41	141-2-8559-10700	Spring RP Switch	1
MC42	141-0-7439-18000	Arm Take-up Assy	1
MC43	141-2-5519-60900	Gear Take-up	1
MC44	141-2-8529-24500	Spring PL SL Base	1
MC45	141-2-5519-61000	Gear Rewind	1
MC46	141-2-7539-64500	Pin Rod Record	1
MC47	141-2-4219-09000	Screw, +M2.0x2.0	1
MC48	141-2-8139-12600	Bracket Counter	1
MC49	141-2-8119-14101	Counter	1
MC50	141-2-5649-25400	Belt Counter	1
MC51	141-2-4539-27601	Washer, M2.1x3.5x0.13	2
MC52	141-0-5219-11700	Flywheel Compl	1
MC53	141-2-5649-25300	Belt	1
MC54	141-2-8529-24900	Spring Rod Stop	1
MC55	141-2-4539-19502	Washer, M3.55x5.5x0.25	1
MC56	141-0-5519-11600	Friction Assy	1
MC57	141-2-4539-38200	Washer, M2.6x4.7x0.4	1
MC58	141-2-8529-25000	Spring Lever ASO	1
MC59	141-2-7419-95200	Lever ASO	1
MC60	4-5279-71294	Motor [M1]	1
MC61	141-2-7319-65301	Rod Switch Leaf	1
MC62	141-0-7319-31501	Rod Stop Assy	1
MC63	141-0-7319-31401	Rod Fast Assy	1
MC64	141-2-8549-28700	Spring Rod FF	1
MC65	141-2-8549-28800	Spring Rod REW	1
MC66	141-0-7319-31301	Rod Rewind Assy	1
MC67	141-2-8549-29300	Spring Rod SW Leaf	1
MC68	141-2-7419-95100	Lever Cue Review	1
MC69	141-2-7419-95000	Lever Rewind	1
MC70	141-2-7419-94900	Lever Lock Record	1
MC71	141-2-7319-65200	Plate Lock	1
MC72	141-2-8529-24800	Spring Plate Lock	1
MC73	141-2-3529-27400	Spacer Cushion Motor	2
MC74	141-2-4459-24900	Cushion Motor	2
MC75	141-2-4579-04400	E Ring	1
MC76	141-2-4539-27603	Washer, M2.1x3.5x0.25	1
MZ1	112-3-1301-20082	E Ring, M1.2	3
MZ2	112-3-1301-50082	E Ring, M1.5	3
MZ3	101-3-2502-00711	Screw, Cylinder Hd., -M2.0x7	1
MZ4	127-3-1217-04013	PI Screw-1, Flat Hd., +M1.7x4.0	2

NOTE:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

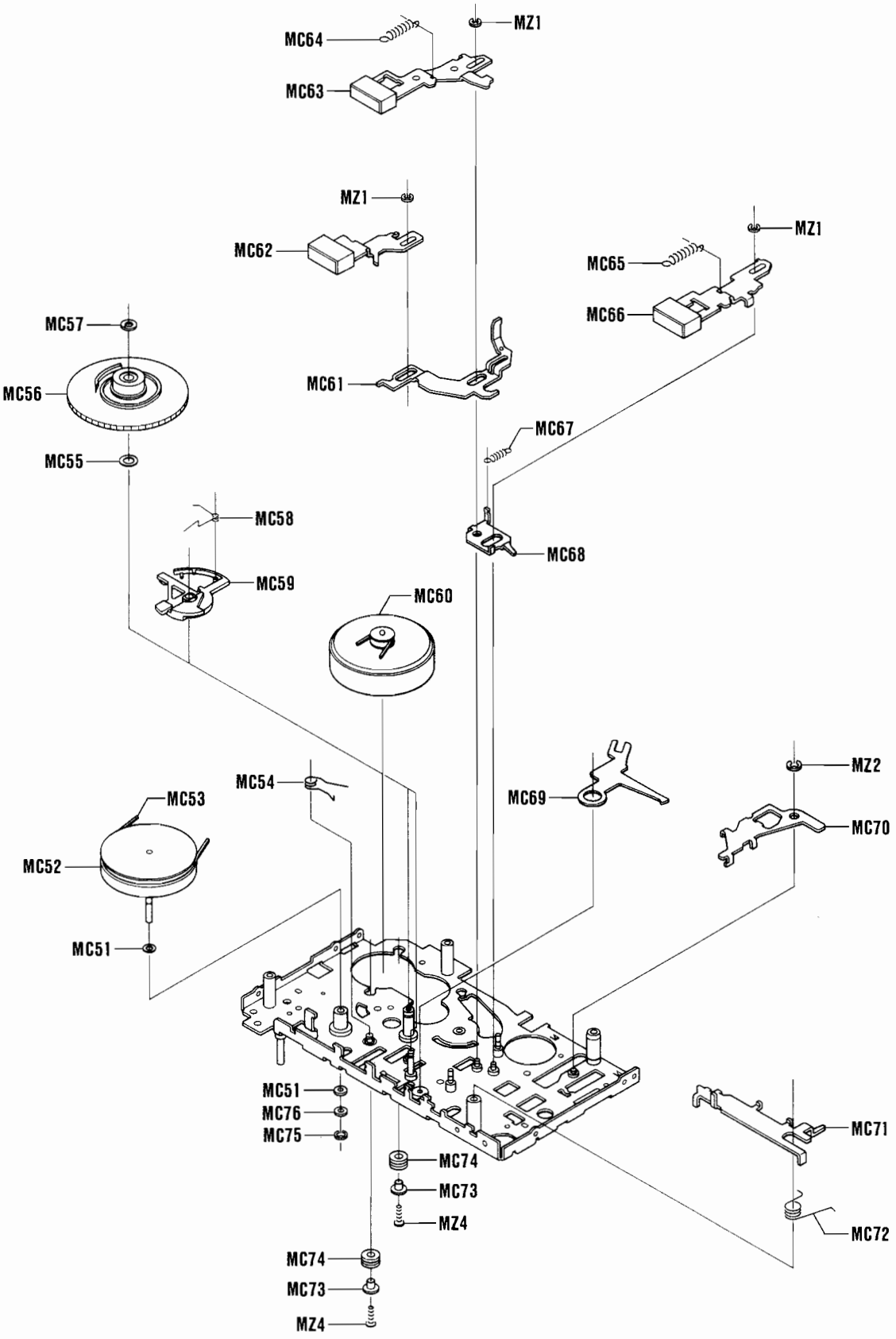
MECHANISM EXPLODED VIEW

(Chassis Top)



MECHANISM EXPLODED VIEW (Continued)

(Chassis Bottom)



P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description				Q'ty
	AMPLIFIER P.C.B. ASSY					
PCB1	141-0-1939-09226	Amplifier P.C.B. Assy				1
	4-2369-73781	Pin 1P				3
	141-2-4359-24400	Insulator				3
	141-2-4359-39100	Insulator				1
	141-2-4729-05000	Staple, 5mm				4
J1	4-2359-75472	1P Jack (Microphone)				1
J2	4-2359-76540	3P Jack w/SW (Earphone)				1
J3	4-2359-74320	Ext. Power Jack				1
S1	4-2319-77290	Slide Switch (Band Select)				1
S2	4-2319-77970	Slide Switch (Function)				1
S3	4-2319-77980	Slide Switch (Record/Play)				1
S4	4-2319-77550	Slide Switch (Voice Operation)				1
S5	4-2319-77550	Slide Switch (Speed)				1
S6	4-2319-75810	Slide Switch (Pause)				1
S7	4-2319-74490	Leaf Switch (Power)				1
BPF1	4-2539-71021	Band Pass Filter				1
L1	4-2599-71171	RF Coil				1
L2	4-2589-72890	OSC Coil				1
L101	4-2539-71003	Choke Coil (8.2μH)				1
L102	4-2539-71162	Choke Coil				1
L103	4-2539-71162	Choke Coil				1
L104	4-2539-71162	Choke Coil				1
L105	4-2539-71970	Inductor				1
T1	4-2569-71821	IFT FM				1
T2	4-2569-71701	IFT FM				1
T3	4-2589-71622	OSC Trans MW				1
T4	4-2569-71800	IFT AM				1
T5	4-2569-71502	IFT AM				1
CF1	4-2539-71891	Ceramic Filter 3R				1
CF2	4-2539-71881	Ceramic Filter				1
PVC1	4-2249-71220	Variable Condenser				1
or	4-2249-71050	Variable Condenser				1
P101	4-2229-73515	Potentiometer (B-2kΩ)				1
VR1	4-2229-73572	Control Volume (Volume/A-30kΩ)				1
TH101	204-5-9000-00200	Thermistor, SDT 20				1
D1	4-2029-72460	Diode, 1SS 211				1
D101	4-2029-72460	Diode, 1SS 211				1
D102	4-2029-72460	Diode, 1SS 211				1
D103	4-2029-72460	Diode, 1SS 211				1
D104	4-2029-72460	Diode, 1SS 211				1
IC1	4-2069-73630	IC, TA 7358 F				1
IC2	4-2069-73640	IC, TA 7757 F				1
IC101	4-2069-72680	IC, BA 3410 AF				1
IC102	4-2069-72690	IC, BA 5208 AF				1
IC103	207-5-1895-52310	IC, LA 5523				1
IC104	4-2069-73661	IC, NJM 2072 M				1
Q1	203-5-4392-99950	Transistor, 2SC 2999				1
Q2	4-2039-72360	Transistor, 2SA 933				1
Q101	4-2039-72360	Transistor, 2SA 933				1
Q102	4-2039-72010	Transistor, DTC 124S				1
Q103	4-2039-72010	Transistor, DTC 124S				1
Q104	4-2039-72190	Transistor, DTC 143TS				1
C1	CC1-0-2500-KE01R	Ceramic	0.001μF	50V	±10%	1
C2	CI2-2-2160-MF01R	Boundary	0.0022μF	16V	±20%	1
C3	CC1-5-0500-JD00C	Ceramic	15pF	50V	±5%	1
C4	CC2-5-0500-JCH0C	Ceramic	25pF	50V	±5%	1
C5	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C6	CC5-0-A500-CD00C	Ceramic	5pF	50V	±0.2%	1
C7	CC2-0-0500-JD00C	Ceramic	20pF	50V	±5%	1
C8	CC1-2-0500-JD00R	Ceramic	12pF	50V	±5%	1
C9	CC1-0-2500-KE00C	Ceramic	0.001μF	50V	±10%	1
C10	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C11	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1

Ref. No.	Part No.	Description				Q'ty
C12	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C13	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C14	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C15	CD2-2-640A-0004V	Electrolytic	22μF	4V		1
C16	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C17	CI2-2-3250-KE00C	Boundary	0.022μF	25V	±10%	1
C18	CT4-7-3160-M00AV	Tantalum	0.047μF	16V	±20%	1
C19	CT4-7-3160-M00AV	Tantalum	0.047μF	16V	±20%	1
C20	CD2-2-740A-0002V	Electrolytic	220μF	4V		1
C21	CC2-0-A500-CD00C	Ceramic	2pF	50V	±0.2%	1
C22	4-2239-72161	Boundary	0.1μF	16V	±20%	1
C101	CI6-8-2160-MF01R	Boundary	0.0068μF	16V	±20%	1
C102	CD3-3-4500-0002V	Electrolytic	0.33μF	50V		1
C103	CD2-2-740A-0002V	Electrolytic	220μF	4V		1
C104	CD1-0-740A-0002V	Electrolytic	100μF	4V		1
C105	CD1-0-5500-0004V	Electrolytic	1μF	50V		1
C106	CD2-2-5500-0002V	Electrolytic	2.2μF	50V		1
C107	CI2-2-2160-MF01R	Boundary	0.0022μF	16V	±20%	1
C108	CD2-2-640A-0004V	Electrolytic	22μF	4V		1
C109	CD1-0-5500-0002V	Electrolytic	1μF	50V		1
C110	CD2-2-5500-0002V	Electrolytic	2.2μF	50V		1
C111	CD1-0-6100-0004V	Electrolytic	10μF	10V		1
C112	CD4-7-5160-0004V	Electrolytic	4.7μF	16V		1
C113	CT4-7-3160-M00AV	Tantalum	0.047μF	16V	±20%	1
C114	CI1-0-3160-NG01R	Boundary	0.01μF	16V	±30%	1
C115	CD2-2-5350-0004V	Electrolytic	2.2μF	35V		1
C116	CI2-2-2160-MF01R	Boundary	0.0022μF	16V	±20%	1
C117	CC3-9-1500-KE00C	Ceramic	390pF	50V	±10%	1
C118	CD2-2-5350-0004V	Electrolytic	2.2μF	35V		1
C119	CD2-2-740A-0002V	Electrolytic	220μF	4V		1
C120	CD1-0-5500-0004V	Electrolytic	1μF	50V		1
C121	CD2-2-740A-0002V	Electrolytic	220μF	4V		1
C122	CD1-0-5500-0002V	Electrolytic	1μF	50V		1
C123	CD3-3-640A-0002V	Electrolytic	33μF	4V		1
C124	CI2-7-2160-MF01R	Boundary	0.0027μF	16V	±20%	1
C125	CD1-0-5500-0002V	Electrolytic	1μF	50V		1
C126	CI2-7-2160-MF01R	Boundary	0.0027μF	16V	±20%	1
C127	4-2239-72210	Capacitor	4.7μF	16V		1
C128	CD1-0-5500-0002V	Electrolytic	1μF	50V		1
C129	4-2239-72210	Capacitor	4.7μF	16V		1
C130	CD2-2-4500-0002V	Electrolytic	0.22μF	50V		1
C131	4-2239-71970	Capacitor CD	470μF 4V			1
C132	CD2-2-663A-0002V	Electrolytic	22μF	6.3V		1
C133	CD1-0-6100-0004V	Electrolytic	10μF	10V		1
C134	CD1-5-663A-0004V	Electrolytic	15μF	6.3V		1
C135	CC1-0-2500-KE01R	Ceramic	0.001μF	50V	±10%	1
C136	CD1-0-5500-0004V	Electrolytic	1μF	50V		1
C137	CT4-7-3160-M00AV	Tantalum	0.047μF	16V	±20%	1
C138	CT1-0-4350-M00SV	Tantalum	0.1μF	35V	±20%	1
C139	CI2-2-2160-MF01R	Boundary	0.0022μF	16V	±20%	1
C140	CT4-7-3160-M00AV	Tantalum	0.047μF	16V	±20%	1
C141	CT4-7-630A-M00NV	Tantalum	47μF	3V	±20%	1
C142	CC4-7-0500-KD00C	Ceramic	47pF	50V	±10%	1
C143	CC2-2-1500-KE01R	Ceramic	220pF	50V	±10%	1
R1	RP4-7-0121-JH000	Carbon	47Ω	1/8W	±5%	1
R2	RP5-6-4121-JH000	Carbon	560kΩ	1/8W	±5%	1
R3	RP3-3-1121-JH000	Carbon	330Ω	1/8W	±5%	1
R4	RP1-0-1121-JH000	Carbon	100Ω	1/8W	±5%	1
R5	RP1-8-2121-JH000	Carbon	1.8kΩ	1/8W	±5%	1
R6	RP3-9-2121-JH000	Carbon	3.9kΩ	1/8W	±5%	1
R7	RP1-5-2121-JH000	Carbon	1.5kΩ	1/8W	±5%	1
R8	RP1-0-0121-JH000	Carbon	10Ω	1/8W	±5%	1
R9	RP2-7-3121-JH000	Carbon	27kΩ	1/8W	±5%	1
R10	RG8-2-1101-JB000	Chip Resistor	820Ω	1/10W	±5%	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description				Q'ty
R101	RP3-9-2121-JH000	Carbon	3.9kΩ	1/8W	±5%	1
R102	RP1-3-3121-JH000	Carbon	13kΩ	1/8W	±5%	1
R103	RP2-2-3121-JH000	Carbon	22kΩ	1/8W	±5%	1
R104	RP1-2-2121-JH000	Carbon	1.2kΩ	1/8W	±5%	1
R105	RP1-2-4121-JH000	Carbon	120kΩ	1/8W	±5%	1
R106	RP1-5-3121-JH000	Carbon	15kΩ	1/8W	±5%	1
R107	RP6-8-2121-JH000	Carbon	6.8kΩ	1/8W	±5%	1
R108	RP1-0-2121-JH000	Carbon	1kΩ	1/8W	±5%	1
R109	RP1-2-2121-JV000	Carbon	1.2kΩ	1/8W	±5%	1
R110	RP1-0-3121-JH000	Carbon	10kΩ	1/8W	±5%	1
R111	RP2-2-2121-JV000	Carbon	2.2kΩ	1/8W	±5%	1
R112	RP2-2-5121-JV000	Carbon	2.2MΩ	1/8W	±5%	1
R113	RP2-7-2121-JH000	Carbon	2.7kΩ	1/8W	±5%	1
R114	RP5-6-3121-JH000	Carbon	56kΩ	1/8W	±5%	1
R115	RP8-2-2121-JV000	Carbon	8.2kΩ	1/8W	±5%	1
R116	RP3-3-3121-JH000	Carbon	33kΩ	1/8W	±5%	1
R117	RP1-0-3121-JH000	Carbon	10kΩ	1/8W	±5%	1
R118	RP1-0-2121-JH000	Carbon	1kΩ	1/8W	±5%	1
R119	RP2-2-0121-JH000	Carbon	22Ω	1/8W	±5%	1
R120	RP6-8-1121-JH000	Carbon	680Ω	1/8W	±5%	1
R121	RP6-8-1121-JH000	Carbon	680Ω	1/8W	±5%	1
R122	RP4-7-0121-JH000	Carbon	47Ω	1/8W	±5%	1
R123	RP4-7-2121-JH000	Carbon	4.7kΩ	1/8W	±5%	1
R124	RP1-5-2121-JH000	Carbon	1.5kΩ	1/8W	±5%	1
R125	RP4-7-1121-JH000	Carbon	470Ω	1/8W	±5%	1
R126	RP1-5-3121-JH000	Carbon	15kΩ	1/8W	±5%	1
R128	RP1-2-2121-JH000	Carbon	1.2kΩ	1/8W	±5%	1
R129	RP2-0-1121-JV000	Carbon	200Ω	1/8W	±5%	1
R130	RP3-9-2121-JH000	Carbon	3.9kΩ	1/8W	±5%	1
R131	RP3-3-2121-JH000	Carbon	3.3kΩ	1/8W	±5%	1
R132	RP1-2-2121-JH000	Carbon	1.2kΩ	1/8W	±5%	1
R133	RP3-3-2121-JH000	Carbon	3.3kΩ	1/8W	±5%	1
R134	RP8-2-3121-JH000	Carbon	82kΩ	1/8W	±5%	1
R135	RP3-3-2121-JH000	Carbon	3.3kΩ	1/8W	±5%	1
R136	RP3-3-2121-JV000	Carbon	3.3kΩ	1/8W	±5%	1
R137	RP1-2-4121-JH000	Carbon	120kΩ	1/8W	±5%	1

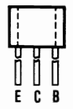
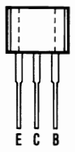
LED P.C.B. ASSY

PCB3	141-0-1939-09500	LED P.C.B. Assy	1
	4-2269-39390	PCB, LED	1
D105	4-2029-71970	LED, SLP 102 B (Record/Battery)	1

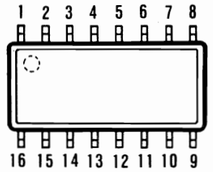
NOTE:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

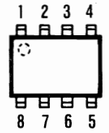
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA933 2SC2999		
DTC124S DTC143TS		
TERMINAL NAME		
B → BASE C → COLLECTOR E → EMITTER		

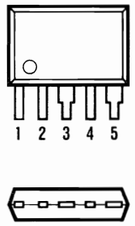
BA5208AF
BA3410AF } **BOTTOM VIEWS**



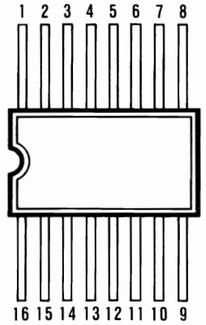
TA7358F
NJM2072M } **BOTTOM VIEWS**



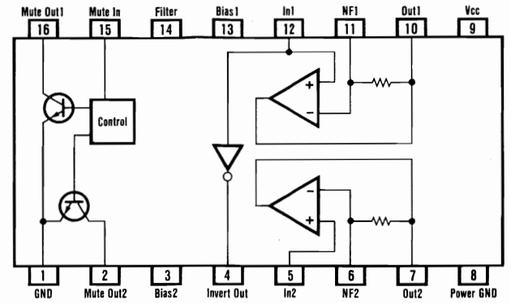
LA5523 FRONT/BOTTOM VIEWS



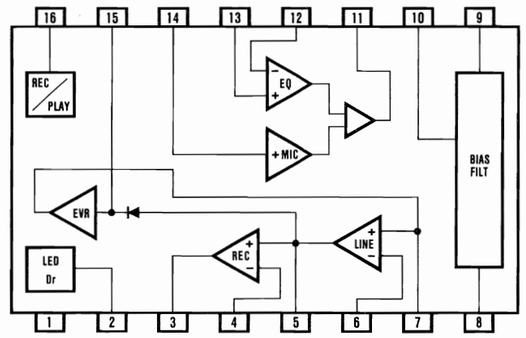
TA7757F BOTTOM VIEW



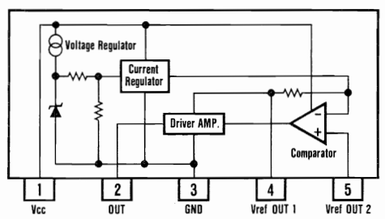
BA5208AF BLOCK DIAGRAM



BA3410AF BLOCK DIAGRAM



LA5523 BLOCK DIAGRAM



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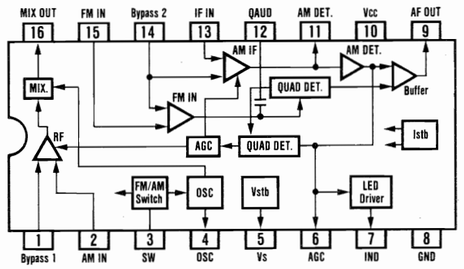
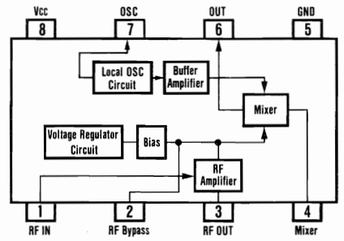
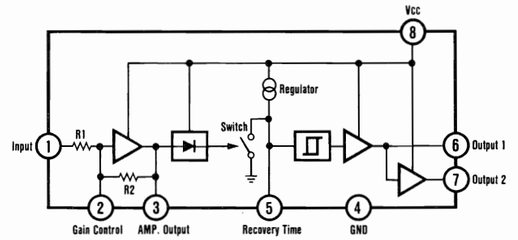


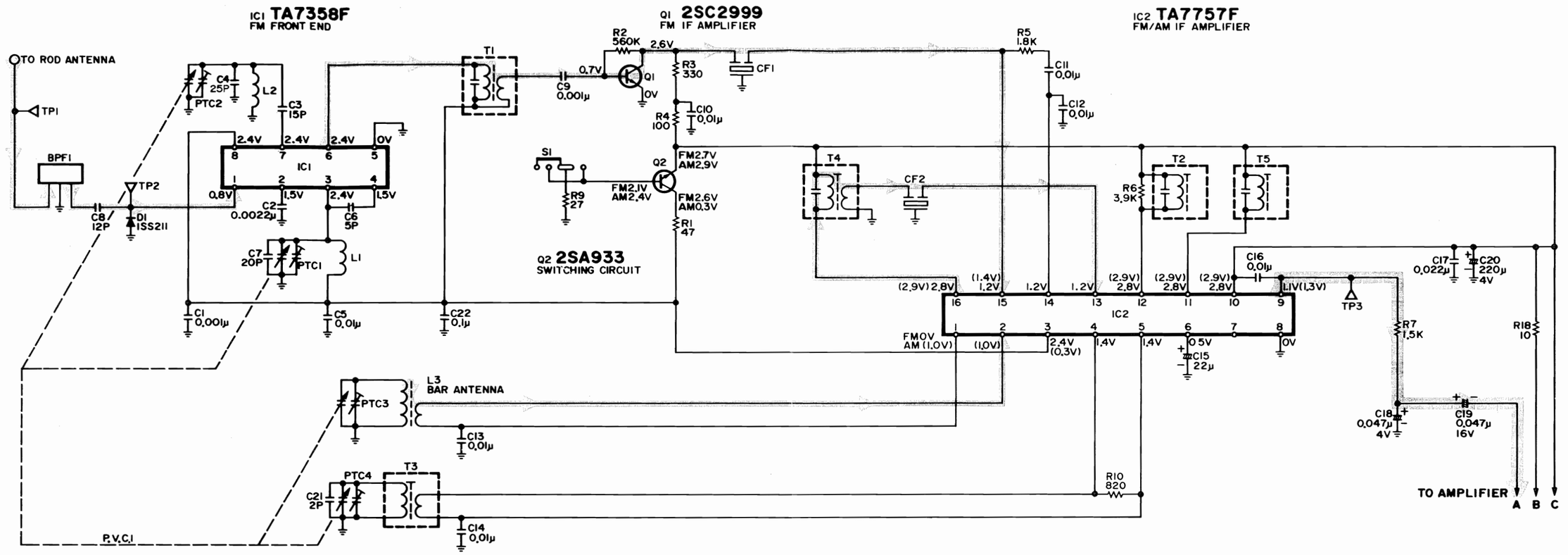
TA7358F BLOCK DIAGRAM



NJM2072M BLOCK DIAGRAM



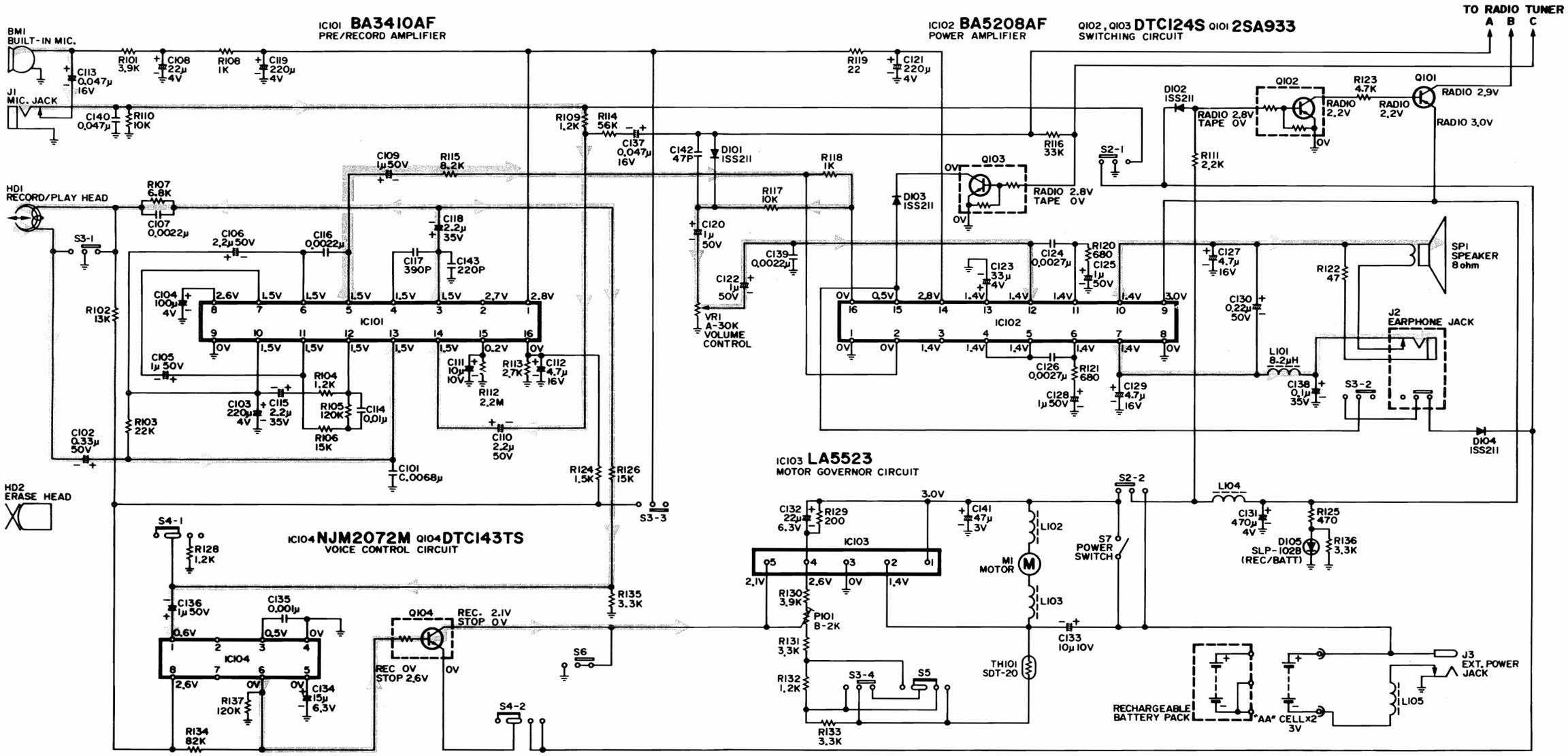
SCHEMATIC DIAGRAM (Tuner)



Signal flow of **AM**

Signal flow of **FM**

SCHEMATIC DIAGRAM (Amplifier)

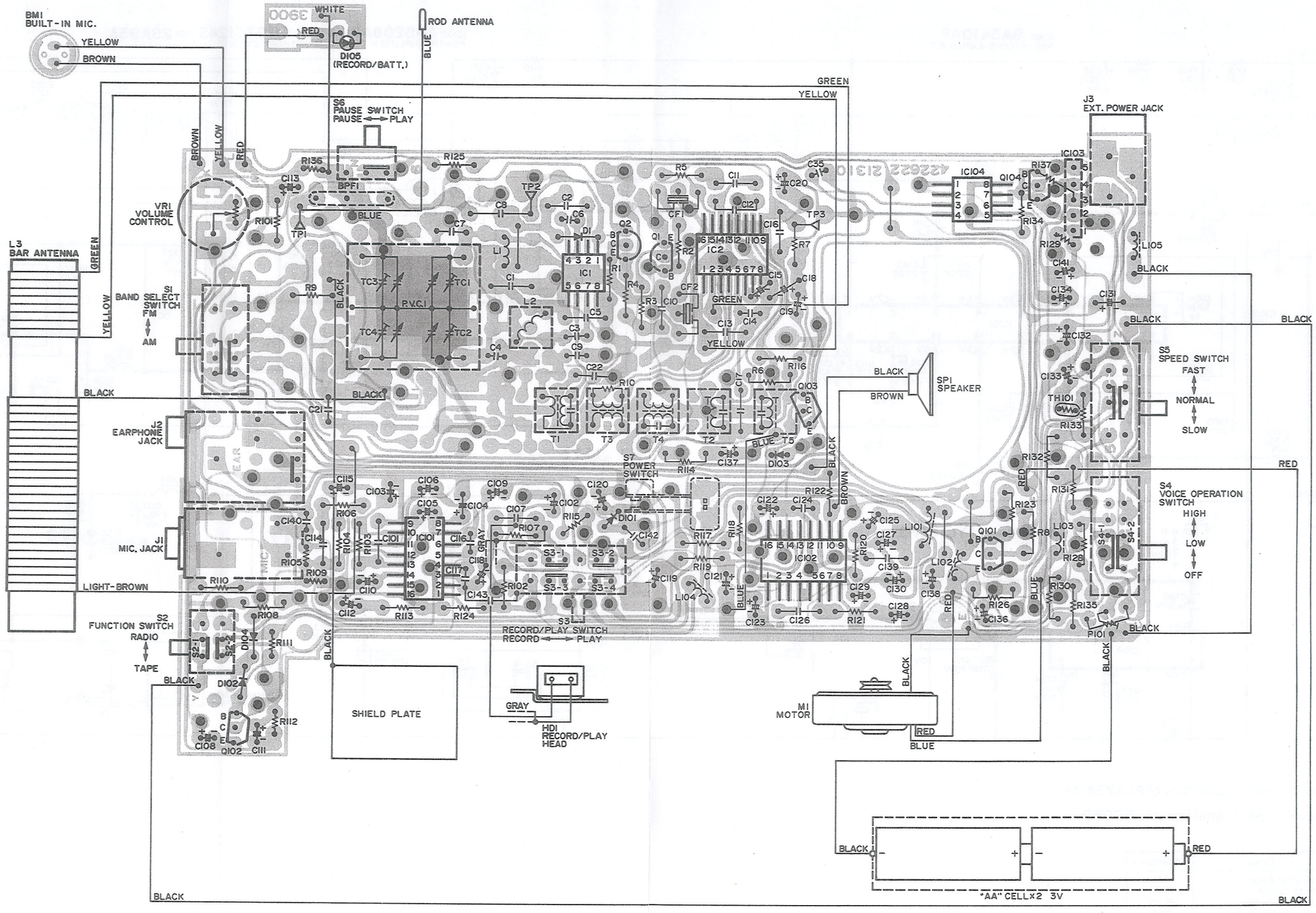


Signal flow of **PLAYBACK**

Signal flow of **RECORD**

No.	Name	Position
S1	Band Select Switch	AM
S2	Function Switch	TAPE
S3	Record/Play Switch	PLAY
S4	Voice Operation Switch	OFF
S5	Speed Switch	NORMAL
S6	Pause Switch	PLAY
S7	Power Switch	OFF

P.C.BOARD & WIRING DIAGRAM



REFERENCE VOLTAGES

	Q101			Q102			Q103		
	B	C	E	B	C	E	B	C	E
Radio	2.2	2.9	3.0	2.8	2.2	0	2.8	0	0
Tape	0	0	0	0	0	0	0	0	0

	Q104		
	B	C	E
Record	0	2.1	0
Stop	2.6	0	0

	IC101															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Playback	2.8	2.7	1.5	1.5	1.5	1.5	1.5	2.6	0	1.5	1.5	1.5	1.5	1.5	0.2	0
Record	2.8	2.7	1.5	1.5	1.5	1.5	1.5	2.6	0	1.5	1.5	1.5	1.5	1.5	0.2	1.5

	IC102															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Playback	0	0	1.4	1.4	1.4	1.4	1.4	0	3.0	1.4	1.4	1.4	1.4	2.8	0.5	0
Record	0	0	1.4	1.4	1.4	1.4	1.4	0	3.0	1.4	1.4	1.4	1.4	2.8	0.5	0

	IC1							
	1	2	3	4	5	6	7	8
FM	0.8	1.5	2.4	1.5	0	2.4	2.4	2.4
AM	–	–	–	–	–	–	–	–

	IC2															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FM	0	0	2.4	1.4	1.4	0.5	0	0	1.1	2.8	2.8	2.8	1.2	1.2	1.2	2.8
AM	1.0	1.0	0.3	1.4	1.4	0.5	0	0	1.3	2.9	2.9	2.9	1.2	1.2	1.2	2.9

	Q1			Q2		
	B	C	E	B	C	E
FM	0.7	2.6	0	2.1	2.6	2.7
AM	0.7	2.6	0	2.4	0.3	2.9

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